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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,665	10/16/2001	Takayuki Narita	81868.0034	7585

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EXAMINER	
LIEU, JULIE BICHNGOC	
ART UNIT	**PAPER NUMBER**
2636	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/981,665	NARITA ET AL.	
	Examiner	Art Unit	
	Julie Lieu	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27,30-47,49,50 and 56-81* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *30-47,49,50 and 56-81* is/are allowed.

6)☒ Claim(s) *1-3,5,6,8-15,20-27 and 59* is/are rejected.

7)☒ Claim(s) *4,7 and 16-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to applicant's amendment filed October 08, 04. Claims 28-29, 48, 51-55 have been canceled. Claims 30-33, 49, 50, 56, 58, 59, 65, 70, amd 71 have been amended.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The indication for allowability of claims 1-27 is withdrawn due to different interpretation of US 6,140,931. The allowability withdrawal is fully regretted.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 3, 5, 6, 8, 9, 10, 12, 13, 14, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamane et al. (US Patent No. 6,140,931).

Claim 1:

Yamane discloses a bearing test method to test, in a bearing that can retain a shaft element and a bearing element coaxially positioned in a non-contact state when the number of revolutions exceeds a predetermined number of relative revolutions, whether the shaft element and the bearing element are in a contact rotation state, the method comprising the steps of: relatively rotating the shaft element and the bearing element; detecting a change in impedance between the shaft element and the bearing element in the relative rotation state, determining, based on the change in impedance, whether the shaft element and the bearing element are in a contact rotation state. See col. 4 to col. 6.

Claim 2:

In Yamane a capacitance change is detected in a state when the shaft element and the bearing element are relatively rotating. See col. 5, lines 34-38.

Claim 3:

The impedance change in Yamane is detected while the number of relative revolutions between the shaft element and the bearing element is varied, and based on a detected impedance change, the number of relative revolutions is detected when the shaft element and the bearing element switch from a contact rotation state to a non-contact rotation state, or from a non-contact rotation state to a contact rotation state.

Claim 5:

In Yamane, the number of relative revolutions is decreased, and the number of relative revolutions is detected as the number of contact rotation when the shaft element and the bearing element switch from a non-contact rotation state to a contact rotation state.

Claim 6:

In Yamane, whether the shaft element and the bearing element are in an abnormal contact rotation state is determined based on the impedance change.

Claim 8:

In Yamane, when the number of relative revolutions is constant and impedance changes occur cyclically, a determination is made that the abnormal contact rotation state is caused either by the shaft element or the bearing element itself or by a foreign matter rotating synchronously with .the shaft element or the bearing element.

Claim 9:

The impedance change in Yamane is detected in a non-contact manner with respect to the shaft element or the bearing element.

Claim 10:

The bearing in Yamane is a dynamic pressure bearing that includes grooves for generating a dynamic pressure by a fluid between the shaft element and the bearing.

Claim 12:

Yamane discloses a bearing test device for testing a bearing that can retain a shaft element and a bearing element coaxially positioned in a non-contact state when the number of revolutions exceeds a predetermined number of relative revolutions, whether the shaft element and the bearing element are in a contact rotation state, the bearing test device comprising: an impedance detection circuit that detects impedance that changes with the contact or non-contact state between the shaft element and the bearing element in a relative rotation state, wherein the impedance detection circuit is equipped with a voltage application device that applies voltage to

one of the shaft element and the bearing element, and an output voltage detection device that detects output voltage from the other, and a determination is made based on a change in the output voltage as to whether the shaft element and the bearing element are in a contact rotation state. See col. 18.

Claim 13:

The voltage application device in Yamane is an alternating voltage application device that applies alternating voltage. See fig. 8.

Claim 14:

The application device in Yamane comprises an excitation electrode placed in close proximity to one of the shaft element and the bearing element and an alternating voltage source that applies alternating voltage to the excitation electrode, and the output voltage detection device comprises a detection electrode placed in close proximity to the other of the shaft element and the bearing element, and an output voltage detector that detects output voltage provided as output by the detection electrode. Col. 4 last paragraph.

Claim 20:

The output voltage detection device disclosed in Yamane comprises a waveform conversion circuit that converts the waveform of the detected output voltage.

Claim 21:

The bearing is a dynamic pressure bearing that includes grooves for generating a dynamic pressure by a fluid between the shaft element and the bearing element.

Claim Rejections - 35 USC § 103

6. Claims 11, 15, 22-27, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamane et al. (US Patent No. 6,140,931).

Claim 11:

The bearing in Yamane is not a bearing for a revolving armature. However, it would have been obvious to one skilled in the art to recognized that the beating state detection system in Yamane can be used on any bearing device.

Claim 15:

It is not clear that each of the excitation electrode and the detection electrode in Yamane is a ring type or a cylinder type. However, it would have been obvious to one skilled in the art to use either ring type or cylinder type because the shape of the electrode should be made conforming to the shape of the spindle and its housing.

Claims 22-27:

The bearing in Yamane is not a bearing for a rotor of a hard disk. However, it would have been obvious to one skilled in the art to recognized that the beating state detection system in Yamane can be used on any bearing device. A hard disk driving motor is not described in Yamane. Nonetheless, a disk driving motor comprising a base plate, and a disk hub for mounting a hard disk thereon, wherein a sleeve as the bearing element is formed in the base plate, and a rotor shaft as the shaft element is provided in the center of the disk hub is very conventional in the art. One skilled in the art would have readily recognized using the bearing test device in a disk drive system as it is use in the machine tool in Yamane.

Claim 59:

Yamane discloses a status detection device which detects the impedance of a bearing. Though Yamane does not disclose the bearing impedance detection device in a memory device to detect the status of a bearing of the disk driving motor. Nevertheless, a skilled artisan would have readily recognized using the device in Yamane in a disk drive system as desired.

Allowable Subject Matter

7. Claims 4, 7, 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 30-47, 49-50 and 56-81 are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Lieu whose telephone number is 571-272-2978. The examiner can normally be reached on Mon-Fri 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass can be reached on 571-272-2981. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Julie Lieu
Primary Examiner
Art Unit 2636

Feb. 06, 05